

WHAT IS CLAIMED IS:

1 1. A load receiver (10) for a balance with an
2 arrangement of arms (11) designed to support weights,
3 wherein the load receiver (10) has a first depression
4 sloped at a variable first slope angle towards a mid-point
5 (32) of the load receiver.

1 2. The load receiver (10) of claim 1, wherein the
2 load receiver (10) has at least one first step in the
3 first depression.

1 3. The load receiver (10) of claim 1, wherein the
2 load receiver (10) has at least one first horizontal
3 portion (34) for disc-shaped weights (15).

1 4. The load receiver 10 of claim 1, wherein the arms
2 (11) of the load receiver (10) have a top surface (33)
3 that is slanted perpendicular to a direction pointing
4 towards the midpoint (32) of the load receiver.

1 5. The load receiver (10) of claim 1, wherein the
2 arms (11) have bends in a lateral direction.

1 6. The load receiver (10) of claim 1, wherein the

2 arms (11) are wing-shaped, grouped around the mid-point
3 (32), and have a common root portion (31).

1 7. The load receiver (10) of claim 6, wherein the
2 load receiver (10) comprises four arms (11) arranged
3 mirror-symmetrically in relation to a vertical plane
4 through the mid-point (32).

1 8. The load receiver (10) of claim 7, wherein the
2 four arms (11) are arranged in two pairs of arms, the arms
3 of a pair enclosing an angle of less than 90°.

1 9. The load receiver (10) of claim 6, wherein the
2 arms (11) have a variable width from an outer end to the
3 mid-point (32).

1 10. The load receiver (10) of claim 1, wherein the
2 load receiver (10) is made of one of a plastic material
3 and a plastic-coated metal.

1 11. The load receiver (10) of claim 1, wherein the
2 load receiver is mounted on a load-receiver frame (17) and
3 the load-receiver frame (17) is freely suspended.

1 12. A loading stage (1) for a balance, wherein the

2 balance comprises a load receiver (10) with an arrangement
3 of arms (11) designed to support a weight, and wherein the
4 loading stage (1) comprises at least one weight-placement
5 device (5) arranged so that the load receiver (10) can
6 reach through the weight-placement device (5) without
7 touching the latter, the loading stage (1) and the load
8 receiver (10) being moveable up and down in relation to
9 each other, and wherein further the at least one weight-
10 placement device (5) has a second depression sloped
11 towards a center (23) of the weight-placement device (5),
12 and the at least one weight-placement device (5) has an
13 open space in an area of the center (23).

1 13. The loading stage (1) of claim 12, wherein the
2 weight-placement device (5) has resting points for the
3 weight and a free space (26) between said resting points,
4 wherein the load receiver (10) has seating points for the
5 weight, and wherein said resting points and said seating
6 points are close to each other when the weight-placement
7 device (5) is positioned so that the load receiver (10)
8 reaches through the weight-placement device (5).

1 14. The loading stage of claim 12, wherein the load
2 receiver (10) has a first depression sloped towards a mid-
3 point (32) of the load receiver, and wherein the first

4 depression and the second depression are sloped at
5 substantially equal slope angles.

1 15. The loading stage (1) of claim 12, wherein the
2 second depression is sloped at a variable second slope
3 angle.

1 16. The loading stage (1) of claim 12, wherein the
2 weight-placement device (5) has at least one second step
3 (24) in the second depression.

1 17. The loading stage (1) of claim 12, wherein the
2 weight-placement device (5) comprises an arrangement of
3 arcuate, loop-shaped weight-placement members (12).

1 18. The loading stage (1) of claim 13, wherein the
2 free space (26) is located inside the arcuate loop of the
3 weight-placement members (12) and the latter have a top
4 surface (25) that is slanted towards said free space (26).

1 19. The loading stage (1) of claim 18, wherein the
2 slant of the top surface (25) varies along the weight-
3 placement members (12).

1 20. The loading stage (1) of claim 12, wherein the

2 weight-placement members (12) have lateral breaks in
3 curvature.

1 21. The loading stage (1) of claim 12, wherein the
2 weight-placement members (12) have a variable width.

1 22. The loading stage (1) of claim 12, wherein at
2 least one of the loading stage (1), the weight-placement
3 device (5) and the load receiver (10) is made of one of a
4 plastic material and a plastic-coated metal.

1 23. The loading stage (1) of claim 12, wherein the
2 loading stage (1) comprises a substantially circular plate
3 (2) with a mid-portion (39), said circular plate (2) being
4 movably supported for rotation about an axis through the
5 mid-portion (39) and having at least two loading locations
6 (9) where weight-placement devices (5) are installed.

1 24. The loading stage (1) of claim 23, wherein the
2 loading stage is further movable up and down, wherein said
3 rotation is motorized and said up- and down-movement is
4 automated for the purpose of automating a weighing
5 process.

1 25. The loading stage (1) of claim 12, wherein the

2 weight-placement device (5) is height- and level-
3 adjustable in relation to the loading stage (1).

1 26. A combination of a load receiver (10) and a
2 loading stage (1); wherein the loading stage (1) has at
3 least one weight-placement device (5); wherein the loading
4 stage (1) and the load receiver (10) are movable up and
5 down in relation to each other and the load receiver (10)
6 passes through the weight-placement device (5) without
7 touching the latter; wherein the load receiver (10) has a
8 first depression sloped towards a mid-point (32) of the
9 load receiver (10), wherein each weight-placement device
10 (5) has a second depression sloped towards said mid-point
11 (32) of the load receiver (10) when the weight-placement
12 device is positioned to put the weight on the load
13 receiver, and wherein each weight-placement device has a
14 free break-through space in an area of the mid-point (32).

1 27. The combination of claim 26, wherein the weight-
2 placement device (5) has resting points for the weight and
3 free spaces (26) between the resting points, wherein the
4 load receiver (10) has seating points for the weights, and
5 wherein said resting points are close to said seating
6 points when the weight-placement device is in position to
7 place weights on the load receiver (10).

1 28. The combination of claim 26, wherein the second
2 depression is sloped substantially in conformity with the
3 first depression when the weight-placement device is in
4 position to place weights on the load receiver.

1 29. The combination of claim 26, wherein the weight-
2 placement device (5) has two arcuate, loop-shaped weight-
3 placement members (12) and the load receiver (10) has four
4 wing-shaped arms (11) arranged in two pairs, and wherein a
5 wing (11) of one pair and an adjacent wing (11) of the
6 other pair embrace each of the two loop-shaped members
7 (12) of the weight-placement device (5) when the latter is
8 in position to place weights on the load receiver.

1 30. The combination of claim 26, wherein at least
2 one of the loading stage (1), the weight-placement device
3 (5), and the load receiver (10) is made of one of a
4 plastic material and a plastic-coated metal.

1 31. A mass comparator comprising a balance with a
2 combination of a load receiver (10) and a loading stage
3 (1); wherein the loading stage (1) has at least one
4 weight-placement device (5); wherein the loading stage (1)
5 and the load receiver (10) are movable up and down in

6 relation to each other and the load receiver (10) passes
7 through the weight-placement device (5) without touching
8 the latter; wherein the load receiver (10) has a first
9 depression sloped towards a mid-point (32) of the load
10 receiver (10), wherein each weight-placement device (5)
11 has a second depression sloped towards said mid-point (32)
12 of the load receiver (10) when the weight-placement device
13 is positioned to put the weight on the load receiver, and
14 wherein each weight-placement device has a free break-
15 through space in an area of the mid-point (32)

1 32. The mass comparator of claim 31, wherein the
2 weight-placement device (5) has resting points for the
3 weight and free spaces (26) between the resting points,
4 wherein the load receiver (10) has seating points for the
5 weights, and wherein said resting points are close to said
6 seating points when the weight-placement device is in
7 position to place weights on the load receiver (10).

1 33. The mass comparator of claim 31, wherein at
2 least one of the first depression and the second
3 depression is sloped at a variable slope angle.

1 34. The mass comparator of claim 31, wherein the
2 second depression is sloped substantially in conformity

3 with the first depression when the weight-placement device
4 is in position to place weights on the load receiver.

1 35. The mass comparator of claim 31, wherein the
2 weight-placement device (5) comprises an arrangement of
3 arcuate, loop-shaped weight-placement members (12).

1 36. The mass comparator of claim 31, wherein the
2 load receiver comprises wing-shaped arms (11), that are
3 grouped around the mid-point (32), and have a common root
portion (31).

1 37. The mass comparator of claim 36, wherein the
2 load receiver (10) comprises four arms (11) arranged
3 mirror-symmetrically in relation to a vertical plane
4 through the mid-point (32).

1 38. The mass comparator of claim 37, wherein the
2 four arms (11) are arranged in two pairs of arms, the arms
3 of a pair enclosing an angle of less than 90°.

1 39. The mass comparator of claim 35, wherein the
2 four arms (11) are arranged in two pairs of arms, the arms
3 of a pair enclosing an angle of less than 90°, and wherein
4 an arm (11) of one pair and an adjacent arm (11) of the
5 other pair embrace each of the two loop-shaped members

6 (12) of the weight-placement device (5) when the latter is
7 in position to place weights on the load receiver.

1 40. The mass comparator of claim 31, wherein the
2 load receiver (10) has arms (11) with a top surface (33)
3 that is slanted perpendicular to a direction pointing
4 towards the midpoint (32) of the load receiver.

1 41. The mass comparator of claim 31, wherein at least
2 one of the first depression and the second depression has
3 at least one step.

1 42. The mass comparator of claim 31, wherein the load
2 receiver (10) has wing-shaped arms (11) with at least one
3 first horizontal surface portion (34) for disc-shaped
4 weights (15).

1 43. The mass comparator of claim 35, wherein a free
2 space (26) is located inside the arcuate loop of the
3 weight-placement members (12) and the latter have a top
4 surface (25) that is slanted towards said free space (26).

1 44. The mass comparator of claim 43, wherein the
2 slant of the top surface (25) varies along the weight-
3 placement members (12).

1 45. The mass comparator of claim 35, wherein the
2 weight-placement members (12) and the arms (11) have
3 lateral breaks in curvature.

1 46. The mass comparator of claim 35, wherein the
2 weight-placement members (12) and the arms (11) have a
3 variable width from an outer area to the mid-point (32).

1 47. The mass comparator of claim 31, wherein at
2 least one of the loading stage (1), the weight-placement
3 device (5), and the load receiver (10) is made of one of a
4 plastic material and a plastic-coated metal.

1 48. The mass comparator of claim 31, wherein the
2 loading stage (1) comprises a substantially circular plate
3 (2) with a mid-portion (39), said circular plate (2) being
4 movably supported for rotation about an axis through the
5 mid-portion (39) and having at least two loading locations
6 (9) where weight-placement devices (5) are installed.

1 49. The mass comparator of claim 31, wherein the
2 loading stage is rotatable, and wherein said rotation is
3 motorized and said up- and down-movement is automated for
4 the purpose of automating a weighing process.

1 50. The mass comparator of claim 31, wherein the
2 weight-placement device (5) is height- and level-
3 adjustable in relation to the loading stage (1).

1 51. The mass comparator of claim 31, wherein the
2 load receiver is mounted on a load-receiver frame (17) and
3 the load-receiver frame (17) is freely suspended.